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40-Minute Lesson Plan Based on

BELGIUM

Theme Article, pages 6 and 7

Aims:

1. **To show how Belgium has in the past been affected by the actions of her more powerful neighbors.**
2. **To show how a small nation, surrounded by large powers, will depend upon the U.N.O. for survival.**

Motivation Idea:

Since Belgium's history and economy have largely been determined by the country's geography, introduce subject to students through map study.

Pivotal Questions:

1. **How did Belgium try to safeguard herself from invasion?**

   By declaring herself a neutral. This action did not keep her out of war. Germany would not respect her neutrality.

2. **In what ways is Belgium different from Holland?**

   Holland is a trading, agricultural nation. Belgium is a manufacturing country relying on raw material imports and export of manufactured goods for wealth. Majority of Dutch people Protestant. Most Belgians Catholic. Holland suffered great physical destruction during war and faces gigantic reconstruction problems. Belgium relatively untouched physically, but like Holland is suffering from malnutrition. Holland has a large, wealthy empire, part of which is in throes of revolt at present. Belgium owns Congo, rich in basic raw materials. Holland faces no impending constitutional crisis. Belgium must deal with exiled king charged with collaborating with Germans. Obvious differences in language, customs, recent history, etc.

3. **Suppose you were a Belgian. From what you already know about Belgium, how might you be earning your living?**

   Miner in coal and iron mines. Office or factory worker in textile, machinery, chemical factories. Shipping industry. Tourist trade. Public services. Journalism. Diamond industry.

4. **Many nations, including the U. S., own colonies. Belgium owns the Congo — 77 times larger than Belgium. Today, there is a great deal of discussion going on about the right of the more advanced nations to rule backward areas of the world. How do you feel about this question?**

5. **The Belgian Congo is a rich source of uranium, raw material of the atom bomb. Do you think the Congo should be put under U.N.O. trusteeship?**

Summary Question:

Can you list (1) the factors that will help Belgium in the future; (2) the factors that will hinder her? Which do you think are more important?

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COMING NEXT WEEK

Theme Article: Germany
Science and Invention: Inside the Atom
Landing on the Moon
Bib and Tuck Interview Red Barber
Builders of America: Buffalo Bill

QUICK QUIZ

TEN QUESTIONS FOR A FIVE-MINUTE TEST

1. What two main groups of people comprise the population of Belgium. (Flemings and Walloons.)
2. What part of Africa does Belgium control? (Belgian Congo.)
3. What high-ranking Belgian official was elected President of the General Assembly of the UNO? (Foreign Minister Paul-Henri Spaak.)
4. Name two of the four nations that border on Belgium. (France, Germany, Holland, Luxembourg.)
5. What Department of the U. S. Government will inform other nations about development in this country? (Department of State.)
6. Where did the UNO hold its first session? (London.)

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7. What two powers seek for control of the Mediterranean? (Great Britain and Russia.)

8. What is the fastest means of transportation known to man? (The airplane.)

9. Who invented the steamboat? (Robert Fulton.)

10. Who was the first to state the law of gravitation? (Sir Isaac Newton.)

UNIT ON TRANSPORTATION — pp. 8, 9

This week, we present the first in a series of three articles on transportation. The second and third articles will appear respectively in the issues of March 25 and April 29.

This publication schedule makes possible a long-term unit assignment on transportation.

Objectives

1. To learn why transportation is necessary in a complex society.

2. To discover how transportation has brought nations closer together.

3. To learn how man has conquered distance through the ages.

Suggested Motivations

1. Ask pupils how they come to school. Walk? Do they ride in a bus? Trolley? Automobile? Subway train? Bicycle?

2. Show motion picture films on transportation.

3. Post drawings or photographs of the various vehicles used for transportation from early times to the present day.

Topics for Reports and Discussion

1. How primitive man traveled.

2. How early ships linked parts of the world that were previously isolated.

   (a) How explorations eliminated many early superstitions and encouraged a more scientific approach to global geography.

   (b) How da Gama, Columbus, Balboa, Magellan, led the way in trail-blazing.

3. Importance of good roads for transportation.

4. How the steam engine revolutionized transportation.

5. The automobile as an instrument of personal travel.

6. How the airplane has conquered geographical obstacles that handicap the ship, automobile, railroad.

7. Effect of transportation on the development of the U. S.

Activities and Projects

1. Prepare (1) a display of miniatures of the various means of transportation; (2) a transportation scrapbook.

2. Make comparative time studies of ocean travel from Europe to America from 1492 to 1946.

3. On an outline map of the U. S., chart important railroad lines and air routes.

4. Visit local bus depot, railroad station, or airport.

Discussion Questions

1. What travel advantages do you have today over a boy or girl of your own age who lived 100 years ago? 200 years ago? 500 years ago?

2. What invention in the history of transportation do you consider the most important? Why?

3. How does transportation affect your daily life?

Fact Questions

1. What was the earliest means of traveling?

2. Who invented the steam engine? Steamboat? Locomotive?

3. How long has the airplane been in use?

Outcomes

1. Appreciation of difficulties of travel experienced by those who lived long before we did.

2. Realization that our nation is not an isolated area free from the possibility of enemy attack.

3. Realization that improvements in transportation will continue to be made as long as man makes use of his inventive genius.

WINNING FRIENDS — p. 5

Have students find out how news is sent to newspapers by news agencies. Ask pupils to bring in samples of AP, UP, INS and special correspondents' dispatches.

How do they present a story? Can you find any words that give you a clue to the writer's opinion? Can you tell the difference between someone's opinion and actual fact?

Discussion Questions

1. Do you think the Department of State should have the right to AP and UP dispatches for the purpose of sending U. S. news to foreign countries?

2. Which of the O.I.C.'s nine points do you think will do the most toward informing other countries about the U. S.?

Fact Questions

1. What are the two major private news agencies in the U. S.?

2. Name two major functions of the State Department.

3. What is William Benton's title?

RUSSIA IN MEDITERRANEAN — p. 4

Discussion Questions

1. Can you see value in having Great Britain and Russia "thrash out their differences" in the General Assembly of the U.N.O.?

2. Why is Great Britain so eager to protect her interests in the Mediterranean?

3. Why is Russia trying to establish a foothold on the Mediterranean?

4. Do you think the British-Russian argument in the General Assembly endangered world peace?

Fact Questions

1. Name three of Russia's demands in the Mediterranean.

2. Name three places along the Mediterranean fortified by Great Britain.

Solution to News Word Puzzle, p. 18

ACROSS: 1-sh; 3-oath; 6-Belgium; 9-brad; 10-lea; 11-of; 13-rut; 14-no; 15-taro; 17-is; 18-set; 19-oh; 21-as; 22-elapse; 25-La.; 26-re; 27-lit; 28-st; 29-limb; 31-I'd; 33-ace; 34-st.; 35-ran; 37-bias; 38-Antwerp; 40-dolt; 41-as.

DOWN: 1-sold; 2-hag; 4-tile; 5-hue; 6-Brussels; 7-eat; 8-mates; 9-lo; 11-or; 12-foolscap; 16-ate; 18-sp.; 20-hates; 22-elm; 23-Libra; 24-at; 30-it; 31-into; 33-air; 36-and; 37-bets; 39-WLA.

Answers to Citizenship Quiz, p. 15

1. WHICH CAME FIRST?: 5; 1; 3; 4; 2.
2. MATCH TRIP: 1-c; 2-a; 3-d; 4-e; 5-b.
3. TELLING THE WORLD: Check 1; 3; 6.
4. POSTWAR BELGIUM: 1-c; 2-b; 3-c; 4-c.
5. MEDITERRANEAN MUDDLE: 1-Great Britain; 2-Dodecanese; 3-Russia, 4-Syria; 5-Dardanelles.
6. PICTURES TO GUIDE YOU: 1-Belgium; 2-General Assembly; 3-William Benton; 4-Russia.

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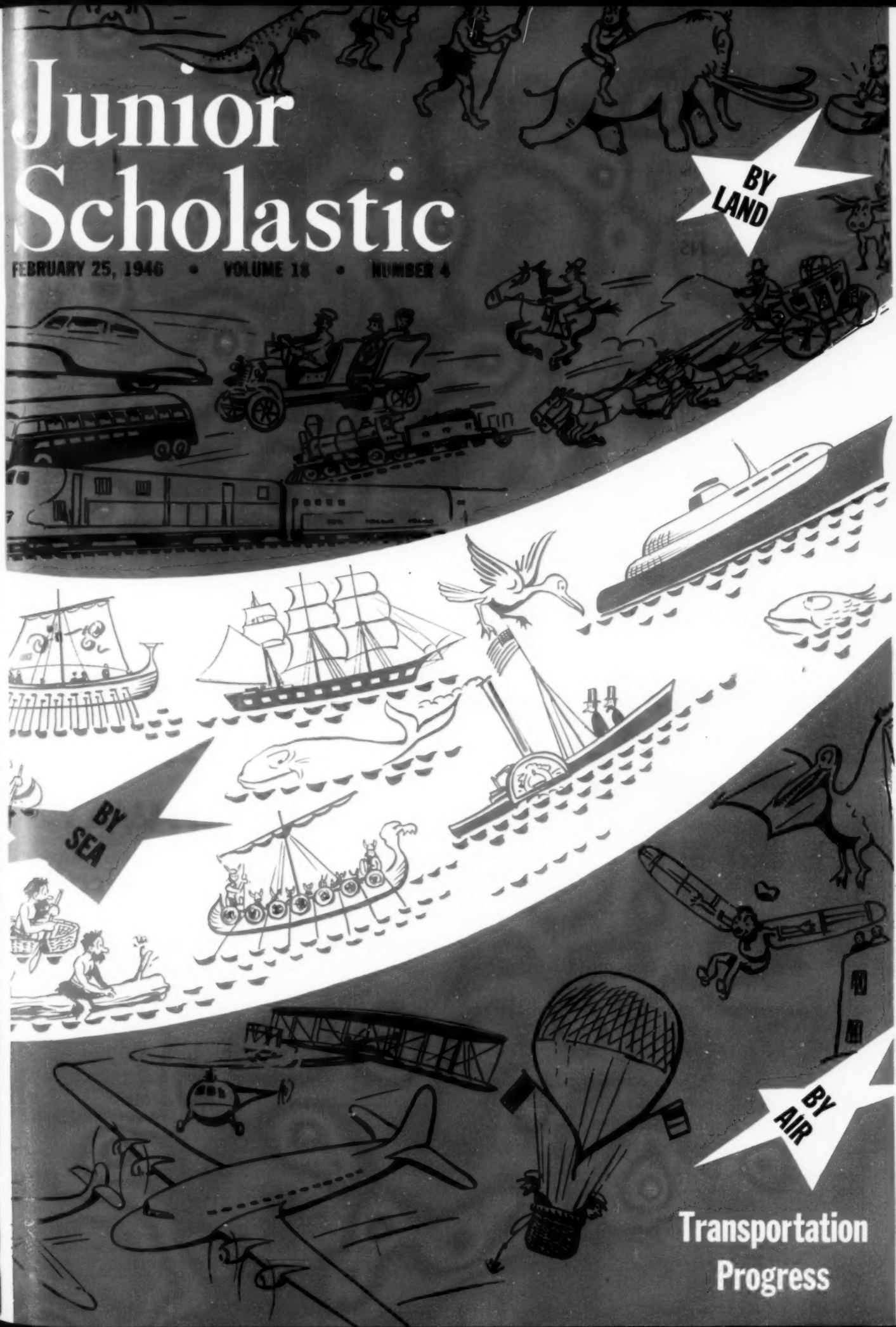
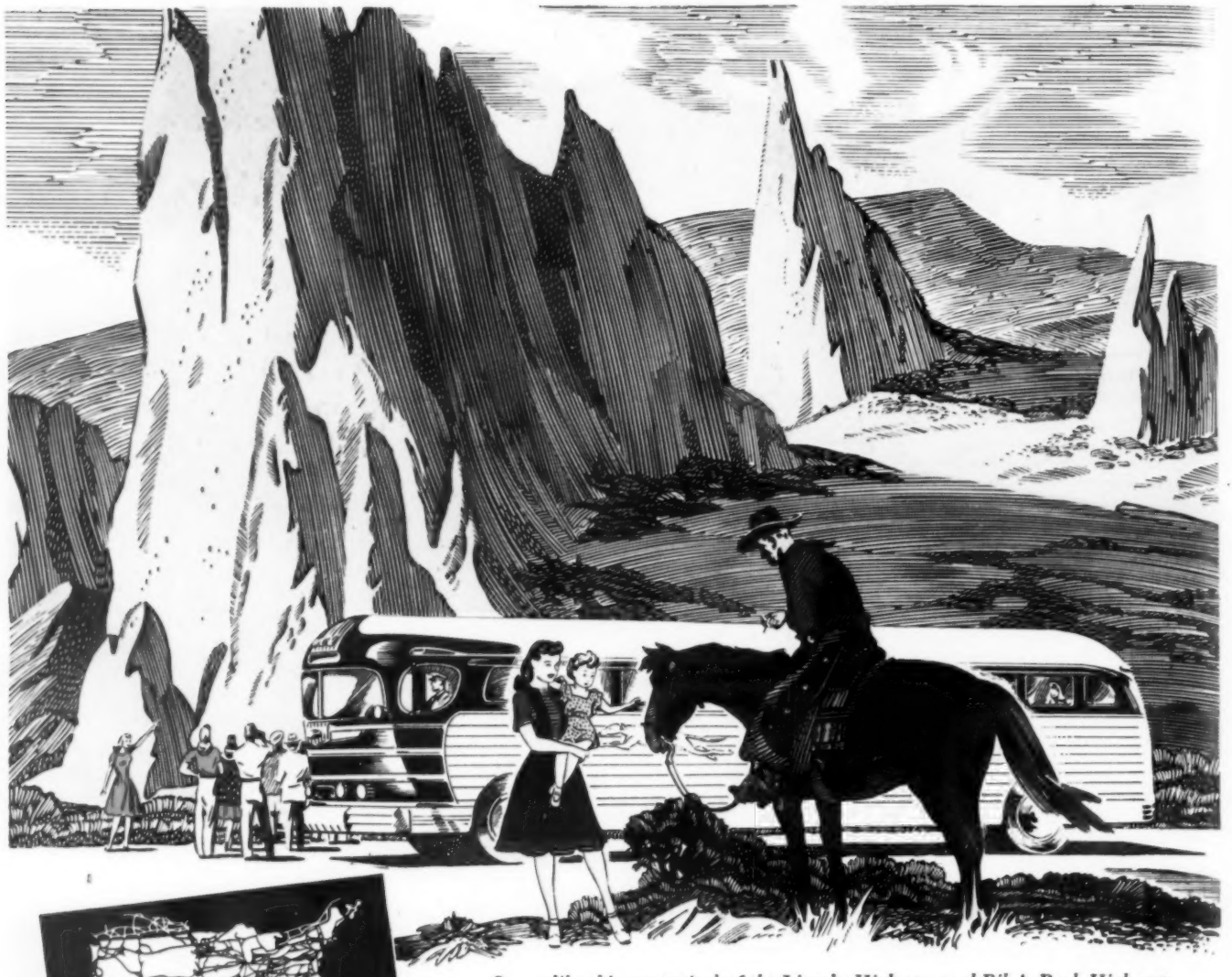


Transportation Progress



Scenes like this are typical of the Lincoln Highway and Pike's Peak Highway

ONLY BY HIGHWAY

you meet the real America!

There's just one way to know and enjoy the magnificent Country in which you live. That's to see it close up, face to face—within handclasp range of its friendly people—in the very shadow of its trees and mountains. That way is the *Highway.*

Greyhound alone serves nearly all the famous Highways of the United States and Canada, and Greyhound covers 75,000 miles of motorways *at a lower cost than any other type of transportation.* Aboard a Greyhound there are no traffic problems . . . but there is deep-cushioned chair comfort which makes it easy to relax and enjoy the passing scene.

Along routes that reveal the distinctive local color of each community, State, and region, Greyhound takes you out to meet the real America . . . an experience you'll find *Only by Highway.*

GREYHOUND

JUNIOR SCHOLASTIC
Your World-View Magazine for School and Home

U.N.O. — Robust Youngster

THE child wonder of the age, the U.N.O., proved to be a bouncing baby. Robust in health, the youngster lived through such ailments as Iranian "measles" and Greco-Indonesian "chicken pox."

The first session of the U.N.O. ended only a few days ago. The intention was to limit the first session to such things as electing officers and setting up various committees. But hot accusations flared up at the meeting which focussed attention on more serious problems.

BRITAIN AND RUSSIA

One of the hottest debates was between Great Britain and Russia.

Russia accused Britain of threatening world peace by keeping troops in Greece and Java. Britain accused Russia of trying to break up the British Commonwealth of Nations.

These arguments before the U.N.O. caused "scare" headlines in many newspapers in the United States. Reading these headlines, you may have had the feeling that the U.N.O. was failing in its purpose and causing quarrels between nations.

Perhaps you think things out more clearly, and do not "scare" easily when reading headlines. Perhaps you see a healthy sign in the arguments carried on in U.N.O., where all the world could hear. Isn't this better than the old way, in which two powerful nations would allow their differences to smolder in secret meetings and then break out in war?

After Britain's Foreign Minister Bevin and Russia's Vice Commissar of Foreign Affairs Vishinsky had their argument before the U.N.O. General Assembly, they calmed down. They agreed to drop the argument over Greece. For the present, British troops will remain in Greece.

Other U.N.O. problems were:

1. **Indonesia.** Russia accused Britain of using her troops in Indonesia to protect Dutch interests, and to crush the Indonesian revolt. Britain branded this accusation as a lie. Russia demanded a U.N.O. investigation of British action in Indonesia.

2. **Iran.** Iran protested to the Security Council about the presence of Russian troops in that country. The Security Council asked Russia and Iran to decide on a solution to the problem themselves. But the Council reserved the right to judge whether the decision reached by Russia and Iran is correct and fair.

3. **Syria and Lebanon.** These two countries appealed to the Security Council to order the withdrawal of British and French troops from their lands in the interest of peace.

4. **Colonies.** Britain announced she will place some of her colonies in Africa under a U.N.O. trusteeship. Britain also promised early independence to Trans-Jordan.

Australia, New Zealand, and Belgium also offered to transfer some of the colonies they control to the U.N.O. Trusteeship Council.

U.N.O. ELECTS OFFICERS

Before the fireworks were touched off by Iran, the U.N.O. carried out its organizational plans. Among the accomplishments of the U.N.O. were the election of officers and the setting up of the Security Council, Economic and Social Council, and Atomic Energy Commission.

The two most important officers elected by the U.N.O. were Belgium's Foreign Minister, Paul-Henri Spaak, as President of the Assembly, and Norway's Foreign Minister, Trygve Lie, as Secretary General.

BETWEEN TWO STATES: Solid black area on map above shows location, between Connecticut and New York, of 42-square-mile tract of land recommended as permanent U.N.O. site. The site must be approved by the General Assembly. Many property owners who live on this site are protesting to U.N.O. because they don't want to sell their homes and land, even for such a cause.

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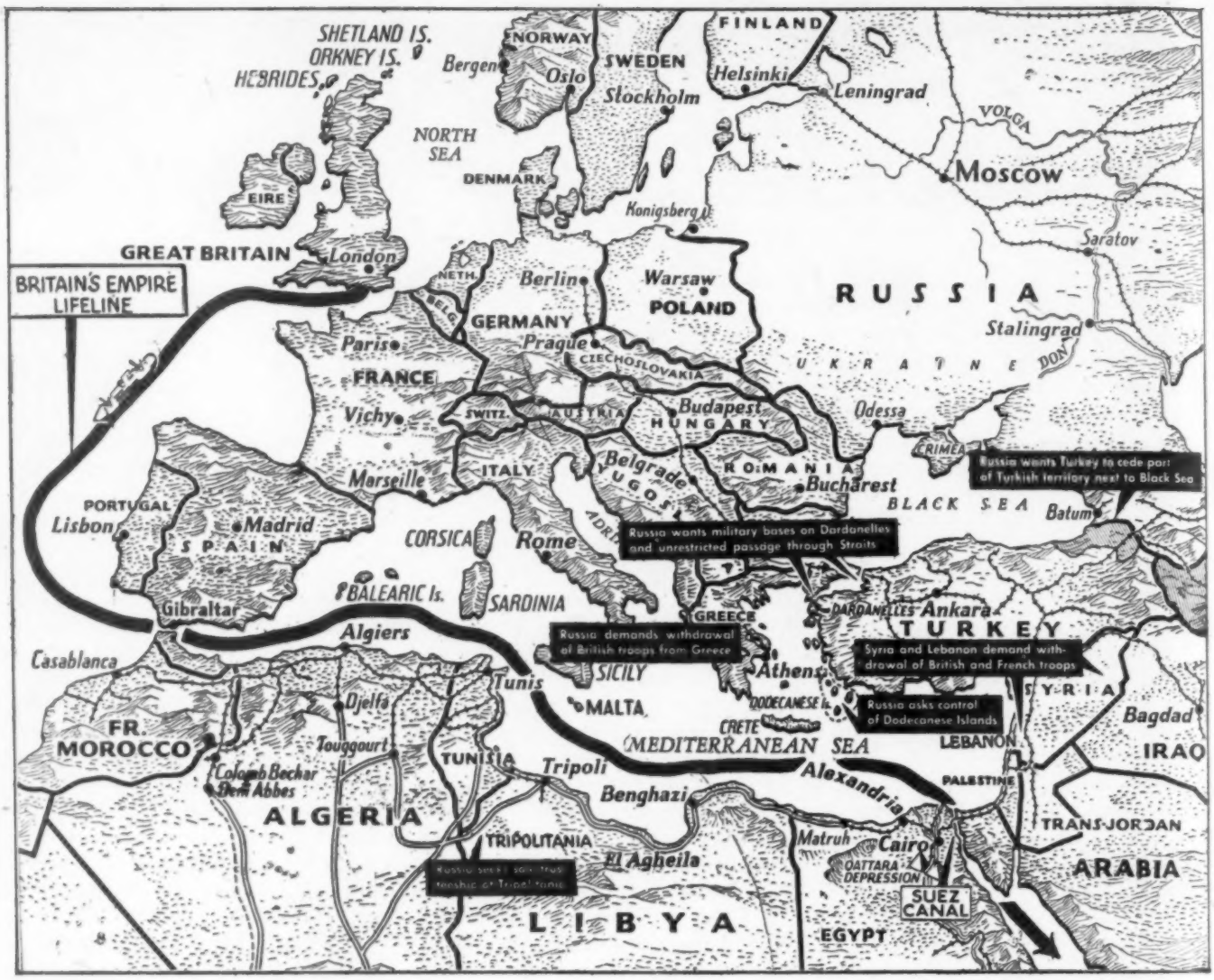


Map copyright, 1946, the Newspaper PM, Inc.

Map shows major areas in the Mediterranean which Russia seeks to own or control.

Russia Reaches into Mediterranean

FOR more than a century, Russia has been trying to get out of the Black Sea and extend her power into the Mediterranean.

In 1854-56, Russia fought Turkey in an attempt to win control of the straits (Bosporus and Dardanelles) that connect the Black Sea with the Mediterranean Sea. Britain helped Turkey to defeat Russia. Britain feared Russia as a rival power, and wished to prevent Russia from gaining footholds in the Mediterranean and the Middle East.

The Mediterranean is a link in Britain's lifeline of empire. Through the Mediterranean, Suez Canal, Red Sea, Indian Ocean, British ships keep trade flowing between England and the far-flung British colonies.

Today that lifeline is not as strong as it was in former years. Britain's colonies and satellite nations are not so firmly bound to Britain as they were in the past.

Airpower has also weakened Britain's lifeline. Super-powered planes, able to carry bomb loads far out to sea, make ships in the Mediterranean easy targets for attack.

Russia is now demanding a share of power in the Mediterranean — power in the form of bases and seaports. The map above shows the major areas which Russia demands.

Why is Russia doing this?

There are two opinions about it. Some people think that Russia is trying to break up the British empire. If this happened, Russia would be the single great power in Europe and the Middle East.

Others say Russia wants these bases for the same reason we, of the United States, want bases in the Pacific Ocean. We have no desire to use these bases to break up other nations or to attack them. Our purpose is a peaceful one. We believe, that with these bases in our hands, future wars can be prevented.

Many people believe that this is Russia's purpose in wanting Mediterranean bases. However, the British are not convinced of this. They don't like the methods Russia uses in making her demands.

Regardless of what nation holds strategic bases in the Mediterranean, or anywhere else, it will be the job of the United Nations Organization to see that all bases are held in the interests of world peace.

Winning Friends and Influencing People

William Benton

FRIENDSHIP is based on understanding. You cannot make friends with strangers, or with people who have wrong impressions about you.

Uncle Sam wants to make friends. He wants the entire world to know what our country is like, so that people everywhere will seek our friendship.

To hold the friends we made during the war, and to make new friends everywhere, is one of our peacetime aims.

This job has been assigned to the Department of State.

DEPARTMENT OF STATE

The Department of State is the branch of our Government which conducts and supervises our affairs in foreign countries. In the drawings on this page are shown four major duties of the Department of State.

Today, the State Department has a new responsibility. William Benton, Assistant Secretary of State for Public Affairs, was asked by President Truman to "give the world a full and fair picture of American life."

Mr. Benton will set up an Office of International Information and Cultural Affairs (O.I.C.). Heading the O.I.C., under Benton's direction, will be William T. Stone.

The O.I.C. has a 9-point program for giving the world a true picture of the United States. These 9 points are:

1. *Voice of America* – a series of short-wave radio broadcasts in 13 languages. These broadcasts will supply information about the U. S. to many parts of the world which cannot be reached by other means.

2. Exchange students, teachers, and scientists with other nations. Ten thousand foreign students will study in the United States during 1946. Many of our students will go abroad to continue their studies.

3. Libraries in 60 countries. During the war, the O.W.I. set up overseas libraries filled with American history books, novels, technical books, and magazines. They are eagerly read by many foreigners.

4. A daily radio news bulletin to our overseas diplomatic posts. These bulletins will keep our diplomats informed on up-to-the-minute developments in the U. S.

5. Background material, biographical sketches, and photographs. These will be sent by mail to supplement★ the radio news bulletins.

6. Photographic exhibits and displays about life in the U. S.

7. Publication of the Russian-language magazine, *America*. This magazine is distributed in Russia, where private-owned foreign publications are not allowed.

8. Newsreels and documentary★ films about the U. S., prepared in many foreign languages and distributed abroad.

9. U. S. representatives in 62 countries to help carry out the O.I.C. program.

★ Means word is defined on page 16.

Most of the important news events in the U. S. are reported by two commercial news agencies – the Associated Press and the United Press.

During the war, the AP and the UP supplied the news they had gathered to the O.W.I., at no cost to the Government.

NEWS AGENCIES OBJECT

But now that the war is over, the AP and UP refuse to supply their news bulletins to the O.I.C. They say that Government-prepared newscasts would be regarded as propaganda.

For many years, the people of Europe and Asia have been fed exaggerated or false reports in their newspapers and on their radios – reports issued by official news agencies of the German, Italian, and Japanese governments.

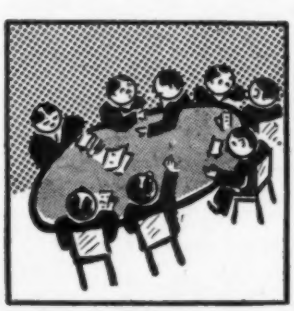
These people may view our Government's newscasts with suspicion and distrust. They may feel that our Government is giving them propaganda.

Because these newscasts would be based on AP and UP bulletins, the two news agencies fear people abroad might also suspect the AP and UP of dealing in propaganda.

Mr. Benton denied this. He pointed out that the United States is interested in spreading facts, not propaganda. He stated, "We shall profit most by portraying ourselves frankly, the bad with the good."

DUTIES OF THE STATE DEPARTMENT

Maintains friendly relations with foreign nations by means of diplomats and other Government officials.



Works out terms of treaties with other countries, and reaches agreements on such treaties.

Issues passports to American citizens going abroad. Issues visas to foreigners who wish to visit the U. S.

Protects American citizens who are abroad, and guards U. S. business interests in foreign lands.

BELGIUM AND THE

"IT HAS happened again!" was the fearful cry of the Belgian people on the morning of May 10, 1940, when word was flashed that German armies were storming into Belgium.

It had happened before, in 1914, at the start of World War I. And many times before that Belgium had been the battleground of European wars. They call Belgium "the cockpit★ of Europe" because of the many wars that have been fought there.

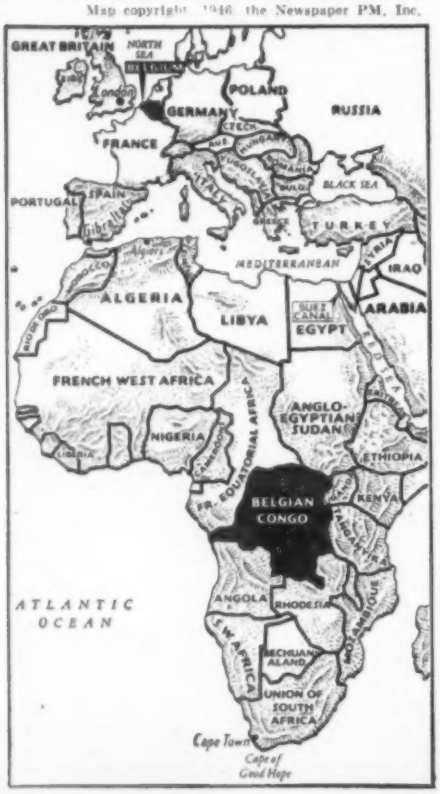
Belgium has always been too small and weak to repel invading armies. For hundreds of years, Belgium was under the control of Spain, Austria, and France. France seized Belgium when Napoleon conquered Europe, and all the Low Countries★ fell into his hands.

In 1814, Napoleon's armies were defeated in the famous Battle of Waterloo – fought on Belgian soil. The great powers of Europe met to draw up a new map of Europe and decide what land should belong to what country.

The European powers decided that Belgium and Holland should be united into a single state. This was like putting a cat and a dog together in a box two feet square. The Dutch and the Belgians disagreed about almost everything, including who was to rule the country.

Belgium and Belgian Congo are shown on map in black. The Congo is Belgium's only colony. Its area is 902,082 square miles or about 77 times as large as the mother country.

Map copyright 1946 the Newspaper PM, Inc.



BELGIUM AND HOLLAND

In 1830, Belgium broke away from Holland and set up an independent government. In 1831, Leopold I was chosen King of Belgium, and a constitution was written. This constitution granted all Belgian citizens the democratic liberties of free speech, free assembly, and free elections.

The rulers of Germany, France, and Great Britain favored an independent Belgium. In 1839, these nations – together with Holland – signed a treaty which guaranteed Belgium's independence. By the terms of this treaty, Belgium was to remain neutral – never to side with any country in the event of war.

But Belgium's neutrality did not protect her from invasion.

When the Germans overran Belgium for the second time, on May 10, 1940, British and French troops went to Belgium's aid. But they were too few and too late. In less than three weeks, Belgium was added to Germany's growing list of conquered countries.

King Leopold III refused to leave Belgium, although his ministers begged him to flee. He surrendered the Belgian army and became a prisoner of the Nazis.

Many Belgians felt that King Leopold should not have allowed himself to be captured and taken to Germany. They felt that the king should have escaped when he had the chance, so that he could be with the Belgian government-in-exile in London.

When Allied armies liberated Belgium in September, 1944, the Belgians set out to put their government in working order. One of the first things the Belgian Parliament did was to bar King Leopold from returning to Belgium. The Parliament appointed Leopold's brother, Prince Charles, as regent – or acting king.

Prince Charles has only limited powers. Belgium is actually governed by a Prime Minister and his cabinet, who are members of Parliament.

The Belgium people went to the polls last week to vote for a new parliament. It was Belgium's first general election since 1939. Five political parties competed for power. They are the Socialists, the Liberals, the Communists, the Belgian Democratic Union, and the Christian Social party.

The new Prime Minister of Belgium will be the leader of the political party that wins the most votes.

As we go to press, the results of the election have not been announced. Most political authorities have predicted that the Socialists would win a majority of the seats in Parliament. The Belgian Socialists favor a program that closely resembles what the British Labor Party is trying out in Great Britain. (See Theme Article, *Junior Scholastic*, Feb. 4).

PEOPLE AND THE COUNTRY

The population of Belgium consists of two main groups, speaking two different languages, and living in two different regions.

The Flemings live in the northern part of Belgium. They speak Flemish, a language which sounds like Dutch.

The Walloons, who resemble the French in many ways, live in southern Belgium. Their language is a dialect of French.

Belgium is a small country, about the size of the State of Maryland. It is very overcrowded, with 708 people per square mile. Compare this to Maryland's population of 134 people per square mile.

Belgium's 8,000,000 people, in normal times, enjoy a fairly high standard of living.

Largely because of her wealth in coal and iron, Belgium before the war was the third greatest industrial nation in Europe. Three times as many Belgians worked in industry as were engaged in agriculture.

Belgium has so little arable land that she must import 60 per cent of her food from abroad.

★ Means word is defined on page 16.

CONGO

Hundreds of ships from all nations docked at Antwerp, the great seaport, to pick up Belgian goods – iron and steel, textiles, machinery, chemicals.

Other Belgian exports included fine laces, porcelain, gloves, carpets, diamonds, and linen.

Before the war, Belgium had another excellent source of income. Tourists from all over the world flocked to Brussels, the capital of Belgium.

When the Germans occupied Belgium during the war, they looted the country of much of its industrial machinery. They destroyed railways and waterways, and deported hundreds of thousands of Belgians to Germany to work in Nazi labor camps. The harbor at Antwerp was seriously damaged by bombing.

Today, Belgium is struggling successfully to get back on her feet. Eighty per cent of her power plants are working again. Her coal mines are yielding 60 per cent of their prewar output. Many of her inland waterways and railroads are bearing traffic again.

But Belgium needs food. Her people are suffering from a meagre diet. One of the most densely populated countries in the world, Belgium cannot feed herself. She must import food from other nations.

THE BELGIAN CONGO

Much of Belgium's wealth comes from her great colony in Africa – the Belgian Congo.

The Congo is Belgium's only colony or possession. Its area is 902,082 square miles – about 77 times as large as the mother country.

The Belgian Congo leads the world in the production of cobalt and industrial diamonds. It ranks second in the production of tin, and fifth in the production of copper. All these vital materials, as well as cotton, rubber and palm oil, helped the Allies to defeat Germany.

Many of these products were shipped to the United States, where they were turned into war materials. Belgium was the only Allied country which sent the U. S. more lend-lease materials than it received.

The Belgian Congo is rich in still another mineral – pitchblende ore. From this ore comes 95 per cent of the world's supply of radium.

Pitchblende is the ore from which chemists extract uranium – the raw material of the atomic bomb. Because the Congo is one of the largest sources of uranium, the Belgian colony is now more important than ever.

TO KEEP THE PEACE

Belgium's wealth not only enables her to support herself, but also to lend money to other countries.

With this in mind, you may ask: "What problems can trouble this rich little country?"

Belgium is troubled by the same problem she has always had. Belgium is too small and too weak to defend herself from a powerful aggressor.

Before World Wars I and II, the Belgians put their faith in neutrality to protect them from attack.

Today, the Belgians put their faith in the United Nations Organization.

If the U.N.O. can keep the world at peace, Belgium as well as other small nations will be safe from invasion.

Belgium is taking an active part in shaping the future of the world. The Foreign Minister of Belgium, Paul-Henri Spaak, has been elected President of the General Assembly of the U.N.O.

Belgium hopes that she may live in peace with her neighbors, in a world where there is security for all.

NEXT WEEK: GERMANY

Belgium, squeezed between Germany and France, has been the scene of great battles throughout history. In both World Wars I and II, Belgium proclaimed herself neutral, but early in each war she was invaded by German armies.

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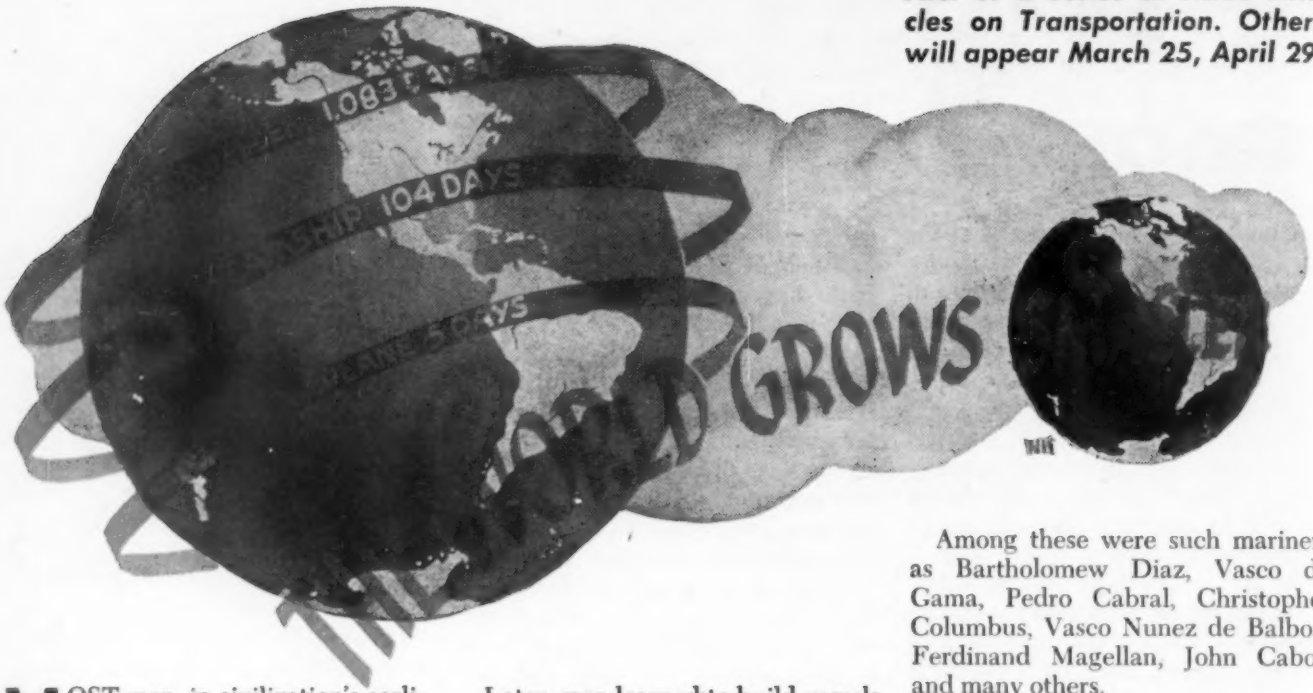
First of a Series of Three Articles on Transportation. Others will appear March 25, April 29.



MOST men, in civilization's earliest days, did not wander very far from their caves or cliff dwellings. A man might have had the urge to explore the unknown, but it did not take him long to realize that if he wandered far from his dwelling place he probably would not come back alive.

Those who did venture forth braved the dangers of ferocious animals and men. If you met a stranger from some other tribe along the way, he was more likely to start swinging his club than to grunt "pleasantly."

Always, among men, there have been those who are explorers. They are the ones who risk their lives, blazing the trail so that those who follow will be safer and more comfortable.

Early man, when setting forth on a journey, had to keep his hands free and ready for a fight. To carry provisions, he required "transportation." This task fell to his wife. She "carried the goods" until, centuries later, man learned how to tame and use animals as "beasts of burden."

When walking along river banks, the early traveller and his wife showed their human intelligence by learning a lesson from the tree branches and twigs that floated downstream. So man built a raft to speed him on his journey.

Crude boats were developed next – large gourds and calabash canoes; "skin" boats, like the Eskimo kayak – and canoes of bark, wood, or woven bulrushes.

Later, men learned to build vessels that could brave the oceans, and the desire for trade coupled with the spirit of adventure led early mariners toward the horizon.

HIGHWAYS OF WATER

Phoenician ships emerged from the narrow mouth of the Mediterranean into the vast Atlantic, skirted the Iberian peninsula, darted south along the west coast of Africa, and even touched at the distant Azores.

Soon after the 5th century B. C., Greek merchant ships ventured into the Black Sea in the east – and sailed around Great Britain in the west.

The ships of many nations sailed the seas in this early era of discovery. Arab trading vessels ventured to China, to India, and probed at the dark coast of Africa. Viking ships roamed from the North Cape to the Mediterranean, sailed to Iceland, and were the first to discover America.

In the 15th century, the magnetic compass appeared. For the first time, sailors could navigate out of sight of land, or when the stars were hidden. Mariners learned to measure latitude at sea by using the astrolabe and other crude instruments for observing the altitude of the sun.

The next one hundred years can be called the Era of the Great Explorers – men whose daring journeys broadened the outline of the world then known to man.

Among these were such mariners as Bartholomew Diaz, Vasco da Gama, Pedro Cabral, Christopher Columbus, Vasco Nunez de Balboa, Ferdinand Magellan, John Cabot, and many others.

By 1550, the stout wooden ships of these adventurers had crossed the great oceans and circumnavigated★ the globe. No longer were maps of the world based on imagination and superstition. One after another, the "blind spots" on the global map were accurately charted.

By the middle of the 19th century, sailing ships had grown greatly in size and speed. The beautiful square-rigged clippers of the 1850s set new records in ocean crossings.

But the sailing ship was already doomed. In 1807, Robert Fulton had harnessed the power of steam to drive ships. In 1833, the *Royal William* crossed the Atlantic Ocean entirely by steam in 23 days.

As screw propellers replaced paddle wheels, and marine engines improved, the size, speed, and comfort of steamships increased. Soon, almost all passenger travel was by steam, and gigantic luxury liners appeared.

Thus, the oceans were tamed – and shrunk in size. By 1930, a 5-day dash across the Atlantic was not considered unusual. Several of the great liners made the crossing in slightly under 4 days.

BOUNDARIES SHRINK

To early man, not only water but land itself was a formidable barrier to travel. Mountains, swamps, and deserts made journeys difficult and dangerous.

In time, man learned the art of

★ Means word is defined on page 16.

road building – an art which the Romans were the first to develop fully. From the hub which was Rome, great highways stretched to the farthest frontiers of the Roman Empire, like spokes in a giant wheel. By the 3rd century A. D., the Romans could boast of a network of roads totalling 52,000 miles.

The constructed road was a great step forward in the progress of transportation. And until the appearance of the steam engine, the wagon was the most commonly used means of travel.

For two thousand years, man busied himself with perfecting the wagon. But the power which made it go was still the same – the horse.

STEAM AND RAILS

In 1802, the steam engine invented by James Watt was used to power a locomotive built by Richard Trevithick, an Englishman.

In 1814, another Englishman, named George Stephenson, built an "iron horse" which was able to haul 90 tons at a speed of 9 miles an hour. In 1829, the Stephenson "Rocket" appeared – a locomotive with a speed of 30 miles an hour.

Railroad fever swept the U. S. like wildfire. Americans laid railroad track toward every point of the compass, until the U. S. was criss-crossed by a cobweb of "high iron."

Today, U. S. railway systems cover more than 250,000 miles of track – enough to girdle the world 10 times. Streamlined trains race over these tracks at speeds of 80 miles an hour.

In 1944 alone, America's railroads carried more than 913,000,000 passengers, and more than three billion tons of freight. Not only steam, but electric engines and Diesel motors are driving the great locomotives of today – monsters which weigh 350 tons and haul mile-long trains.

HORSELESS CARRIAGE

Until the beginning of this century, if you were not going where railroads and steamboats went, you had to use the horse-and-buggy.

The invention of the internal combustion engine made possible a new means of travel – a horseless carriage which did not ride on rails of steel, but which could travel wherever there were roads.

The first internal combustion engine was built by George Selden, of Rochester, N. Y., in 1875. He later built a better engine and designed an automobile. In 1892, "gasoline buggies" of the Selden design were built by the Duryea brothers, of Springfield, Mass. The following year, Henry Ford made his first car in Detroit. The first Ford car looked like a horse-and-buggy in every way but one – the horse was missing.

In 1902, R. E. Olds, one of the pioneer automobile builders, manufactured 2,500 Oldsmobiles. He was the first "big" automobile manufacturer. In a few years, Henry Ford topped this record. It was the Ford Model T, first built in 1908, which took the automobile off the curiosity shelf and made it a useful machine.

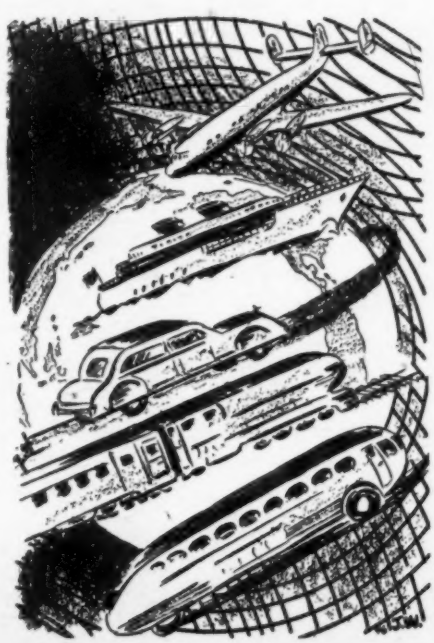
As more and more automobiles rolled off assembly lines, many thousands of miles of hard-surfaced roads and super-highways were built. Millions of automobiles, and thousands of busses and trucks, move over these roads today – carrying passengers and goods to every corner of the United States.

But even before the automobile was fully developed, man turned to the conquest of the air.

THE AIR OCEAN

Long before the Wright brothers took their frail plane into the air at Kitty Hawk, N. C., man was no stranger in the air ocean which surrounds the earth.

Men had already ventured into the air thousands of times – aboard balloons, and gliders, and even clinging to immense kites.



But the use of air ocean for the practical purpose of transportation began with the Wrights. In making the first powered air flight in history, they get the credit for man's take-off, into the Air Age.

In the 42 years since the Wrights' flight, the airplane has developed into the fastest form of transportation.

In 1944, U. S. airlines carried more than 4½ million passengers to their destinations, safely and swiftly. All of these domestic airline flights were made along the 10-mile wide sky-roads known as Federal Airways. In the U. S. alone, these airways now total more than 35,000 miles and link together every city served by a scheduled airline.

ONE AIR, ONE WORLD

Similar sky-roads have been charted in the international air. Giant sky clippers are already operating over these trade routes of tomorrow. The planes of one U. S airline now land on schedule in more than 40 countries, transporting passengers and cargo all over the globe. New aircraft are now under construction which will carry 204 passengers from New York to London in about nine hours.

But the major importance of the airplane is not its speed, which undoubtedly will increase still further. The most important fact about this newest means of transportation is that it makes use of the air ocean.

Because it does, no place on the globe is isolated any longer. All places are at the bottom of the same air ocean, whether they are in Timbuktu or nearby Kansas. The mountains, deserts, and turbulent oceans of the planet matter hardly at all. The airplane flies over each as easily as if it were a pebble, a grain of sand, a drop of water.

Today, no place on the globe is more than 60 hours away from you. Tomorrow, it may be no more than 40 hours, or 10 hours, or 3 hours away. In fact, jet propulsion experts predict that 10 years from now, it will be possible to fly around the world in 15 minutes!

Yes, this small planet of ours has shrunk. Seen from the stratosphere, it is no bigger than the globe in your school library – and just as easy to circumnavigate!

SCIENCE and INVENTION

ATOMIC WORLD

4. Simple as Alpha, Beta, Gamma

By DAVID DIETZ, Author of "Atomic Energy in the Coming Era"

REMEMBER that speck of pure radium which the Curies discovered – and how it gave off such powerful rays that the air around it was heated and electrified?

Well, that speck of radium was like a bombshell in the world of science. Here was an atom which was actually blowing itself apart, and scattering debris* in the form of powerful radiations. If those radiations could be analyzed, science would have a real clue to the structure of the atom.

A great English scientist named Ernest Rutherford set out to analyze the radiations. He accomplished this by allowing his tiny hoard of radium to shoot its radiations between the poles of a powerful magnet.

Rutherford found that radium actually gave off three separate rays, which he named "alpha," "beta," and "gamma" rays – after the first three letters of the Greek alphabet.

The beta rays, which bent to the right in the magnetic field, were actually a stream of negatively charged electrons. The gamma rays, which were not affected by the magnetic field, proved to be very much like X-rays. But the alpha rays proved to be the greatest surprise.

Atoms of Helium

It was clear that the alpha rays, which were bent to the left, were themselves positively charged. Rutherford found that the alpha rays were shot off from the radium atom at a velocity of 20,000 miles per second.

Analyzed with the aid of a spectroscope, these alpha rays – or alpha particles, as they were later called – turned out to be helium gas. In other words, the atoms of radium were shown to be giving off atoms of helium!

What happens to a speck of radium, constantly exploding and shooting off alpha particles and beta particles? Rutherford found that it loses weight, and in time becomes – lead.

For centuries, ancient alchemists had dreamed of turning one chemical element into another. All through the Middle Ages, men had worked to turn iron and lead into precious metals such as gold and silver. They had always failed. But now Rutherford showed that nature herself was an alchemist – turning uranium into radium, and radium into lead.

Rutherford's Experiment

More important than this was the use which Ernest Rutherford made of the alpha particles he had discovered. He decided that these alpha particles, which traveled at 20,000 miles per second, made perfect atomic bullets. Why not shoot them at other atoms and see what happened?

Rutherford's experiment was really simple. He permitted a stream of alpha particles (shot off from radium) to strike a sheet of gold about 1/300,000 of an inch thick. Beyond the gold leaf he set up a fluorescent screen. When an alpha particle struck the screen it caused a spark of light. Millions of alpha particles were able to pass through very easily, as the atoms in the gold leaf are spaced widely apart.

However, every so often an alpha particle left the gold leaf at an angle after it had passed through. This meant that it had struck something in the gold leaf just as hefty as it was, and had glanced off from the impact.

Now, an alpha particle is much heavier than an electron. So the alpha particle could not have collided with an electron, or it would simply have brushed the electron out of its path.

Rutherford felt certain that the alpha particles had collided with the nucleus of the atom, and that this nucleus was positively charged. The atom, he felt certain, consisted of more than the lightweight electrons.

Further experiments showed Rutherford that the atom also contained particles which are positively charged – protons. And each proton is 1,800 times the size of an electron.

Nucleus of Atom

Rutherford felt that the nucleus of an atom is made up of as many protons as the atom has electrons. The positive charge of the protons balances the negative charge of the electrons.

Actually, the nucleus of each atom except hydrogen is made up of more than protons. Hydrogen, the simplest atom, has one proton for a nucleus and one electron revolving about it. But other atoms are more complex. Their nuclei are a mixture of protons and neutrons.

But Rutherford had discovered the proton, and proved that the atom had a nucleus. Because of his great experiments, man was closer than ever to the truth about matter.

Next week: Inside the Atom

Smash Atom News

When the Navy tests atomic bombs on warships this summer, the tests will be photographed by cameras from the tops of 100-foot steel towers.

The cameras will be operated by remote control from a distant ship. Other cameras will take pictures from airplanes flying at safe distances. In addition, several radio-controlled, pilotless planes will carry cameras still closer to the scene of the explosion.

Although the cameras on the ring of towers will be 5 to 10 miles away from the blast, they will be protected by air-tight water-proof boxes. This is so that no tiny radioactive particles caused by the explosion will spoil the film.

Radar to Guide Fog-Bound Ferries

Remember how ferry boats honk and whistle while they grope their way through fog?

Well, fog horns may soon be a thing of the past. Radar is being converted from wartime to peacetime use – and one of its new duties will be to guide our ferries through fog-bound waters.

Photo shows Capt. Louis Van Bogaert, commodore of the Black Ball Ferry Lines in Seattle, Wash., as he looks over radar equipment recently installed on the ferry boat *Kalakala*.

The *Kalakala* runs between Seattle and the city of Bremerton, across Puget Sound. It will be the first ferry boat in this area to test the effectiveness of radar in guiding ferries through fog.

Press Association

MAKING A GOOD INDIAN

By Charles Tenney Jackson

EXCEPT for John Cook, a friend of their former Eastern home, the Perris young people were alone on the ranch and were rather enjoying the experience.

It was still in the eighties in Arizona, and in this valley families were few and scattered and the country rough and wild.

The young people were harvesting the bean crop. Fred Perris and his chum, John, gathered and piled the dry bushes on muslin sheets and flailed them. Alice and the two younger children picked the white kernels out and put them in a sack.

The ranch buildings were half a mile away in the valley, where there was some shade. At noon John and Fred each took a pail of water from the springs and, with Alice and the children, started for the house. They had to carry all their water from the springs because the well, which had been sunk to a depth of eighteen feet near the house, had ended on bed rock with a shallow pool.

At the bottom of the well John and Fred had found, above the bed rock, a layer of sand in which there were grains of gold. In their spare moments they had raised some of this sand by a windlass, and had washed a few grains of gold from it.

Excavating the sand from the dry well had left a round, cavernous space at the bottom. The boys had followed one drift that led fifty feet, and that came out on the arroyo★ near the stables. The opening there was a cleft in the rock only a few inches wide.

Chattering and laughing, they hurried down the dusty canyon road toward the cool house. But when they turned the point of rocks into the valley, their laughter died. The ranch house, the granary★ and the out-buildings – the very haystack they had left half cut – were white and level stretches of ashes, hot and glowing in the wind. The tiny cottonwoods that had stood near the little house were scorched and withered!

As the young people stood, white and horror-struck, too completely dazed to take in the full meaning of the destruction, a rifle shot rang out, and a bullet whirled up the ashes in a gray spiral.

On the hill half a mile away, a dozen riders appeared. One glance told the homeless family that they were Apaches.

Indians were plentiful enough in that region – the terrible raids of Geronimo were only just over. But lately the troops had carefully kept the Indians on the reservation.

This was a swift and silent raid, such as the Apaches usually planned. They had slipped from the reservation to harry the valley ranches, sweep up all the cattle and horses, and dash to the mountains—where the soldiers would be six months in "rounding them up."

There came another shrill whistle of a bullet, some blood-curdling yells, and then seven of the Apaches came dashing wildly down the slopes.

The boys looked helplessly around. There was no place to hide, no weapon with which to defend themselves. John carried a shotgun, but that would scarcely hold off seven Indians. There was no chance of escaping the mounted savages.

"The old well!" Fred cried suddenly. "It's our only chance! John, take the crank! We can lower them to the bottom! Hurry, Alice! Hold May by the arm!"

With the boys stoutly blocking the speed of the windlass, Alice clung to the rope until she felt the rock bed under her feet. Then she crawled into the opening under the ledge, from which the sand had been taken. Directly under the opening was the shallow pool of bitter water, so that any one, looking down from above, would not at once notice the cave.

Fred Perris lowered his eight-year-old brother and then his friend. When he sprang over the curbing himself and seized the rope, the Apaches, with frightful yells, were coming on a hundred yards away. They fired from their saddles, and one bullet tore through the wooden box of the windlass just above Fred's head.

The boy landed with a jump, knee-deep in the water, and quickly joined the others under the ledge. The space, which was almost dark, was not four feet high at its best. The bed rock was dry and cool.

Scarcely a minute passed before the Indians were at the mouth of the well. In the pool, the children saw their broad, squat faces reflected as the savages gazed in astonishment at the well bottom, apparently covered with water. There were guttural exclamations. Then one savage leaned over and shouted.

Little May began to whimper as the menacing voice reverberated★ through the cave, but Alice quickly buried the child's head in her lap. Lying stretched on the rock, they watched the uncertain reflections in the water of the cruel faces. Fred

(Please turn to page 14)

The Apaches fired a dozen shots into the well. Then they peered down through the drifting smoke.

★ Means word is defined on page 16.

BUILDERS OF AMERICA

ROBERT FULTON (1765-1815) Father of the Steamboat

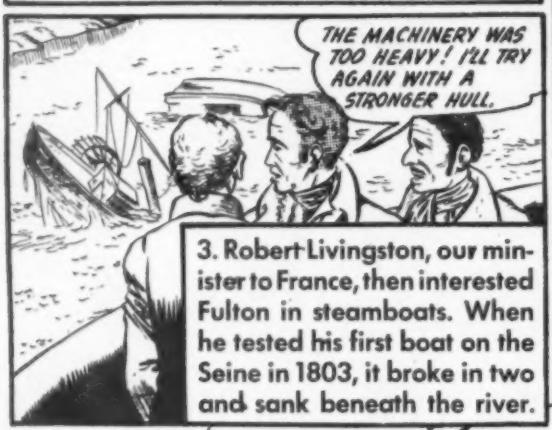
NOW that ocean liners cross the Atlantic in four days, it is difficult to remember that ships once depended on wind for their speed.

Such was the state of navigation when Robert Fulton was born in Little Britain, Pennsylvania. Fulton's earliest interest was drawing, and in 1786 he went to London to study art. There he turned to engineering. Within a few years, he invented machines for sawing marble, spinning flax, and twisting rope, as well as an inclined plane to replace canal locks.

When he turned his talent to a steam-propelled ship, Fulton was able to learn from the failure of Fitch, Rumsey, and other steamboat builders. Although Fulton did not originate any of its parts, he is credited with the invention of the steamboat. He was the first to put together a steamboat that could be used successfully for commercial purposes.

KEEP TURNING THE CRANK, AND THE PADDLE WHEELS WILL MAKE US GO UP THE STREAM!
THIS IS WONDERFUL, BOB. IT ISN'T HALF AS BAD AS POLING.

1. Bob Fulton liked to fish, but he did not enjoy the hard work of poling the boat. He figured out an easier way when he was 14 years old.



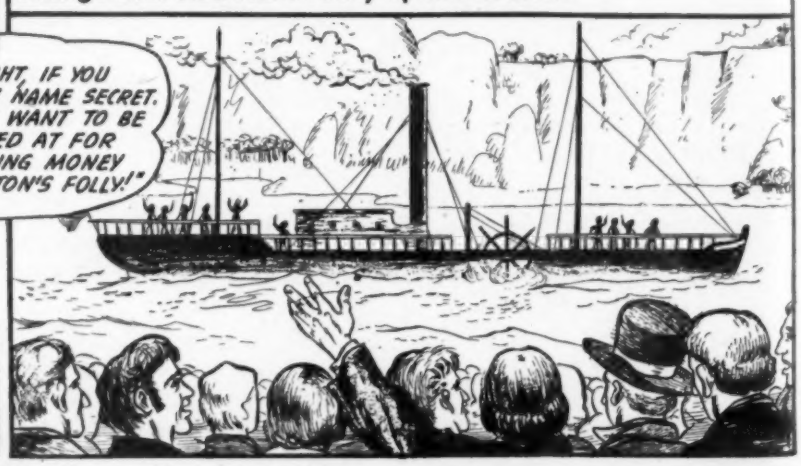
3. Robert Livingston, our minister to France, then interested Fulton in steamboats. When he tested his first boat on the Seine in 1803, it broke in two and sank beneath the river.

BUT I CAN'T GO AHEAD WITHOUT YOUR SUPPORT.
ALL RIGHT, IF YOU KEEP MY NAME SECRET. I DON'T WANT TO BE LAUGHED AT FOR SPENDING MONEY ON FULTON'S FOLLY!"

4. Fulton's second attempt proved successful. He then returned to America to build a steamboat to navigate the Hudson River between New York and Albany.

2. In later years, his inventive genius produced many new machines. In 1800, Fulton developed a submarine torpedo boat, but could not interest the French or British governments in it.

5. Crowds gathered on New York wharves to jeer as the *Clermont* began its first voyage in August, 1807. They stayed to cheer as the strange boat steamed steadily up the Hudson.



Text by Marion Secunda • Drawing by Don Burgess

FLIGHT TO THE MOON

This is the first of three articles on an imaginary visit to the moon by Dr. R. S. Richardson, of the Mount Wilson Observatory in California, and W. T. Skilling. Their book, *Sun, Moon and Stars*, from which these articles are reprinted, will soon be published by Whittlesey House, McGraw-Hill Book Co.

IT SEEMS quite certain that we shall never be able to visit the moon except in imagination, so let us now imagine ourselves on such a tour.

As the most reasonable mode of travel for the trip to the moon that anyone has proposed is by means of a rocket, we shall suppose that we are going in this most nearly possible way. It certainly is not possible to travel there by airplane or balloon, for they require air in which to move, and the air reaches only a few hundred miles beyond the earth.

A rocket could travel in empty space. It is like our Fourth of July skyrockets, which are sent on their way by explosions backward. One reason why we cannot expect a rocket to be made that would actually ever reach the moon is that it would have to be loaded with an unreasonably large amount of powder or other explosive to carry it so far. In fancy, however, we can do unreasonable things.

MUST WEAR LEAD SUITS

Like aviators, we should have to dress warmly for the trip. Also, like aviators, we should have to take along a supply of oxygen to breathe. But aviators never go high enough in the air to feel the full force of the sun's rays, because they are protected by the air still above them from too much ultra-violet rays.

We should have to wear lead suits, because this light would be dangerous after we had gone above the upper air.

We have counted up the greatest difficulties to be met if we should attempt a trip to the moon – the lack of air, intense cold (not far from the absolute zero temperature, which is the temperature that shows no heat at all) and troublesome ultraviolet rays from the sun. But there is one law of nature that would make our progress easier the farther we moved from the earth. The higher we would go, the less weight would our rocket have to lift.

GRAVITATIONAL PULL

Sir Isaac Newton discovered that all bodies – the earth, the moon, and the sun, for example – attract less and less as they are farther and farther away. We could never get so far from the earth that its drawing force, called the force of attraction, could not reach us. But long before arriving at a distance as great as that of the moon, we should scarcely notice the earth's pull.

Did you know that it is this pull of the earth upon us (also called the force of gravitation) that makes us weigh whatever we do? If a person weighs 75, 100 or 200 pounds, it is because the earth draws him with that many pounds of force. But even halfway to the moon, the earth could draw us with only one nine-hundredth as much force as it can when we are on the earth's surface. For this reason, a 900-pound load here would be a 1-pound load there (halfway to the moon). A 180-pound man would weigh only 1/5 pound there.

Newton's law of gravitation holds for the moon as well as for the earth. As our rocket drew closer and closer to the moon, the moon's pull upon us would become greater and greater. The drawing force (the force of gravitation) depends not only on distance but also upon the amount of material (mass) in the attracting body. If the earth and the moon weighed the same, they would attract us equally when we were halfway between them. Then we would weigh nothing.

We would fall neither toward the earth nor toward the moon. But the earth is about eighty-one times as heavy as the moon. It has eighty-one times as much mass, so it comes about that we should have to be much closer to the moon than to the earth in order to have them attract us equally.

It can be calculated that we should have to go nine-tenths of the way to the moon before it would draw us forward as strongly as the earth drew us back. Beyond that point, we should need brakes of some sort to keep us from falling through the remaining 24,000 miles to the moon.

HOW WE WOULD LAND

The first new problem that our pilot would have to solve, even before reaching the moon's surface, would be some new way of landing. The rocket has no propeller to be slowed down or stopped. If it had one, it would do no good without air. His passengers could not bail out, for a parachute would fall as fast as a stone. The only way of putting on brakes would be to begin firing the explosives forward from the front of the rocket, instead of backward, from the rear.

In our landing, the moon itself would be kinder to us than the earth would be. Our fall toward it would be slower and a crash would be less violent, for the moon has only one-sixth as much force to draw us as the earth has.

Next week: Landing on the Moon.

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A GOOD INDIAN

(Continued from page 11)

had both barrels of the shotgun cocked and ready.

The Indians held excited arguments. They probably guessed now that the well was hollowed, for presently they began to shoot at the edges of the bottom.

The reports were terrifying in the close space. The big Remington bullets of soft lead smashed and glanced on the rock and tore the water, and the choking, pungent smell of powder drifted into the cave. Presently, both the small children were crying in terror, while Alice bravely tried to quiet them.

When the Apaches had fired a dozen shots, they stopped and peered down through the drifting smoke. None of them apparently wished to venture down into the well. After a minute or two their faces disappeared from the rim of the well.

"They haven't gone," Fred whispered to John. "I've heard too many stories of their cunning. We've got to watch them close for some trick!"

"If they find the drift to the arroyo," said John, "they'll try that."

"It's too small for any one except a child to get through. And I don't believe they will discover it, anyway."

The drift hole was merely a narrow, crooked cleft under the masses of slate. The boys could see it now—a dim patch of light — at the end of the dark passage.

BUT their attention was soon drawn back to the well, for the Indians had reappeared. Tearing away the well curbing and the windlass, the savages threw a mass of boards and brush over the opening. The fugitives now lay in total darkness. Fred crawled to his sister's side and put his arm around the small boy.

"Don't be afraid, Allie," he said. "They're going to build a fire to roast us out, but they can't. You take the children and crawl back into the drift. There'll be some pure air coming in there and you can't be suffocated."

While Alice and the children moved as far as they could down the dark passageway, Fred and John lay and watched the rosy glow that was beginning to show in the pool. Pieces of burning grasses and wood began to fall sizzling into the water.

Presently, the fire burst out brightly, and began to roar in the well top. Great chunks of flaming wood fell through, and the boys quickly seized the burning brands and thrust them under the water.

But while they were at this work, a mass of blazing wood dropped on John Cook and burned him painfully about the neck and hands. The boys quickly scrambled back—not a second too soon, for as they reached the shelter of the cave the whole blazing mass fell down into the pool.

Choking fumes filled the space, and every moment the heat became more intense. Gasping for breath, and nearly blinded by the acrid smoke, the boys had to retreat from their position and crawl toward the drift hole. But even at that end of the passage, the atmosphere was suffocating.

The children began to scream in pain and fright. But luckily, the noise that the Apaches were making as they threw burning wood and brush down the well drowned the cries of the fugitives.

Presently, the Indians stopped throwing fuel on the fire. The heaps of brush burned dully for a while and then smouldered down. The well became a glowing, ash-whitened cylinder, sending waves of scorching heat down the passage.

After waiting a while, Fred crawled over the hot rock to the well. Glancing carefully up between jagged parts of the wall, he saw two Indians peering down. He waited as long as he could, trying to learn what the Indians intended to do, but at last the heat from the smouldering ashes drove him back.

After a long wait, during which the cooling air revived them a little, they heard a scuffling in the well, and Fred once more crept forward to investigate.

An Indian was climbing down into the well. A lariat was about his waist, and another savage standing above paid out the line, which others must have been holding. Round and round swung the Apache, catching a foot here and there, and glancing down curiously.

Then the Indian who was holding the rope changed his position. As he did so, he apparently stepped with his bare foot on a ledge of rock covered with live coals, for suddenly, with a wild yell of pain, he dropped the rope and sprang for the opposite edge.

At that moment, the man in the well had his foot on a projecting rock at the side, and the sudden slackening of the rope caused him to whirl and to pitch headfirst to the bottom.

Fred trained the shotgun upon him, but the savage lay still, even though the hot embers were burning his bare back. His muscles were twitching in agony when Fred seized his shoulder and dragged him back hurriedly under the ledge.

At sight of the boy, a great shout of surprise came from the Indians who had rushed to the side of the well. They had evidently been confident that every one below was dead.

"Take the gun, John!" Fred shouted. "Let them see that we're not hurt at all!"

John leaped forward, knelt on the savage's body, and fired both barrels of the shotgun upward. Shouts of amazement answered the roar of the big gun. The boys waited anxiously, but the only sound they heard from above was that of whispered consultation. Presently, even that ceased, and there was absolute silence.

The prisoner, who was cut and bleeding, now began to move, and they tied him hand and foot with the lariat. Then, after waiting an hour for further signs from above, they crawled back to Alice and told her what had happened.

AFTER another hour, darkness began to fall. The Apache had revived and lay, watchful and sullen, in his bonds. He was very young, not more than fifteen years old apparently, although large of frame. He wore brass beads in his black, greasy hair, and was naked to the waist. His blue trousers, held by a cartridge belt, were torn and old. He submitted to having his wounds dressed in stolid astonishment, and lay in the long dark of the night in absolute silence.

When daylight came at last, Fred and John scaled the rough well sides and cautiously peered out. The ashes of their little home were cold, and the place was deserted.

John climbed down again to guard the prisoner and comfort the children, while Fred set off for a ranch house five miles away. He reached it at sunrise, to find the place deserted. But he caught a horse there and rode to a cow camp, where he found the men discussing the swift attack of the Apaches.

The cowboys rode back to help the boys rescue the refugees from the well. Alice and the children were sent to the ranch of Mr. Perris's brother near Tucson. John and Fred, however, lived in a tent on the home ranch with Mr. Perris until the crops had been harvested.

The military authorities held the young savage a prisoner for two years, and then sent him to the United States school for Indians at Carlisle, Pennsylvania. Eight years later, he went back to Arizona to teach in a Protestant mission school — an educated, well-mannered, and law-abiding young man.

Many an evening since then he has spent with his friends, the Perrises, chatting about the fight at the well when Fred Perris dragged him, senseless and bleeding, from the fire. He still bears the scars from the burns upon his quiet, copper-colored face.

This story is reprinted by special permission of Wilcox & Follett Co. from *The Best Stories of Heroism I Know* by John Clair Minot, copyright 1934.

Citizenship Quiz

These questions are based on articles in this issue. Perfect score is 100. Answers are in TEACHERS EDITION.

1. WHICH CAME FIRST?

Each of the inventions below represents progress in transportation. Put these inventions in the order in which they appeared. Label the one that was invented first (1), next (2), etc. Score 3 points each. Total, 15.

( ) Airplane
( ) Sailing ship
( ) Train
( ) Automobile
( ) Steamboat

My score____

2. MATCH TRIP

Match each of the following inventions with the man known for his work on it. Score 3 points each. Total, 15.

___1. Steamboat	a. Richard Trevithick
___2. Locomotive	b. Wright brothers
___3. Internal combustion gasoline engine	c. Robert Fulton
___4. Steam engine	d. George Selden
___5. Airplane	e. James Watt

My score____

3. TELLING THE WORLD

The Office of International Information and Cultural Affairs has a 9-point program for informing other countries about the U. S. Below is a list of 6 functions. Check the 3 that are part of the OIC's program. Score 5 points each. Total, 15.

1. Supervise exchange of students with foreign countries.
2. Appoint Ambassadors.
3. Broadcast news to U. S. diplomats overseas.
4. Photograph major events for the Associated Press.
5. Publish all daily newspapers in the U. S.
6. Make foreign - language news broadcasts to other parts of the world.

My score____

4. POSTWAR BELGIUM

Underline the phrase that correctly answers each of the following questions. Score 5 points each. Total, 20.

1. What country invaded Belgium in 1940?
(a) Holland; (b) France; (c) Germany.
2. To what nation did Belgium once belong?
(a) Great Britain; **(b)** Netherlands; (c) Russia.
3. Who is the exiled ruler of the Belgians?
(a) Prince Charles; (b) Queen Wilhelmina; (c) King Leopold III.
4. On what continent does Belgium own a large colony?
(a) Europe; **(b)** North America; (c) Africa.

My score____

5. MEDITERRANEAN MUDDLE

Identify each nation or place by choosing the correct answer from the list. Score 3 points each. Total, 15.

1. Nation that regards the Mediterranean as part of its lifeline of trade. _____
2. Islands in the Mediterranean sought by Russia. _____
3. Big Three nation requesting that Britain withdraw her troops from Greece. _____
4. Asiatic nation demanding the withdrawal of French troops. _____
5. Straits through which Russia demands unrestricted passage. _____

a. Dodecanese; b. Great Britain; c. Russia; d. Dardanelles; e. Syria.

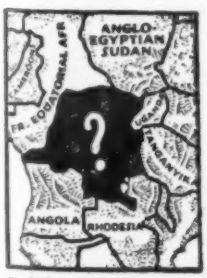
My score____

6. PICTURES TO GUIDE YOU

Write your answers on the lines under each question. Score 5 points each. Total, 20.

My score____

My total score____



1. What nation owns this territory in Africa?

2. Branch of U.N.O. that makes final decision on U.N.O. site.

3. Assistant Secretary of State for Public Affairs.

4. What nation seeks sole trusteeship of this territory?

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FREE CATALOG

S-T-A-R-R-E-D W-O-R-D-S

Words starred★ in the magazine are defined below.

arroyo (a-ROY-oh. Pronounce the *a* as in cat), p. 11. Small, often dry, gully.

granary (GRANN-uh-ree), p. 11. Place where grain is stored.

reverberated (re - VUHR - burr - ate-ihd), p. 11. Echoed back.

circumnavigated (sir-kuhm-NAVV-ih-gate-ihd), p. 8. Sailed completely around. From the Latin *circum* meaning around, and *navigare* meaning to sail.

debris (day-BREE), p. 10. Scattered fragments; ruins; rubbish.

supplement (SUP-lih-ment), p. 5. To add to; complete.

documentary (dock - you - MEN-tuh-ree), p. 4. Making use of original materials to give information about a subject. A documentary film is one that photographs the actual place and people it claims to tell about. For example, a documentary film about the Mississippi would show pictures of the river itself.

Low Countries, p. 6. Belgium and Holland are called the Low Countries because they are largely below sea level.

cockpit (COCK-pit), p. 6. Area noted for many conflicts. Originally, a small arena in which trained roosters fought.

PLACES IN THE NEWS

(The accented syllable is capitalized.)

Tripolitania (tree - poe - lee - TAH-nyah), p. 5.

Dodecanese (doe-deck - uh - NEEZ), p. 5.

Solution to Last Week's Word Puzzle

ACROSS: 1-glands; 6-slim; 7-up; 8-ships; 9-to; 10-placed; 13-co.; 14-sari; 15-eye; 16-hr.; 17-Me.; 18-Ra; 20-ht.; 22-nab; 24-dime; 27-ai; 28-reamed; 30-Ga.; 31-idiom; 33-Ur; 34-seen; 35-Easter.

DOWN: 1-glide; 2-lip; 3-Amsterdam; 4-Dutch; 5-spoor; 6-she; 8-scientist; 10-P.S.; 11-la; 12-arm; 19-aim; 20-Hague; 21-tiara; 23-brier; 25-me; 26-Ed; 29-eon; 32-Dee.

WIN a Word Wizard button!

Send your *Word Trees* to Junior Scholastic Word Wizards, 220 E. 42nd St., New York 17, New York. Include your name, address, school, and the name of your teacher.

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Movie Checkup

✓✓✓Tops, don't miss. ✓✓Worthwhile. ✓So-so.

Drama: ✓✓Tomorrow Is Forever. ✓✓The Bandit of Sherwood Forest. ✓✓✓They Were Expendable. ✓✓✓A Walk in the Sun. ✓✓✓The Bells of St. Mary's. ✓✓Adventure for Two. ✓Shock. ✓✓Adventure. ✓✓Spellbound. ✓Diary of a Chambermaid. ✓✓Saratoga Trunk. ✓Dragonwyck. ✓Sentimental Journey. ✓✓Miss Susie Slagle's. ✓✓The Seventh Veil. ✓✓Confidential Agent.

Comedy: ✓✓Because of Him. ✓Pardon My Past. ✓She Wouldn't Say Yes. ✓✓Breakfast in Hollywood. ✓✓✓Colonel Effingham's Raid. ✓What Next, Corporal Hargrove? ✓✓Road to Utopia. ✓People Are Funny.

Musical: ✓✓✓The Harvey Girls. ✓✓Yolanda and the Thief. ✓Ziegfeld Follies. ✓Mexicana. ✓Stork Club. ✓Masquerade in Mexico. ✓Sunbonnet Sue. ✓The Dolly Sisters.

Mystery: ✓Cornered. ✓Behind Green Lights. ✓Danger Signal. ✓✓Mildred Pierce. ✓✓✓The House on 92nd Street.

Western: ✓✓San Antonio. ✓✓Abilene Town. ✓Frontier Gal. ✓✓Dakota.

Short: ✓✓✓The House I Live In.

SHEnanigans

WANT to make your own "what-not" shelves – to hang on a wall of your room and show off your collection of glass animals, tiny vases, and "what-nots"? Here's how:

1. Use 3-ply plywood 12″ x 4″ for each shelf (ask lumber dealer to cut 3 shelves to size).

2. Clamp 3 shelves together and bore 4 holes through them. Bore 2 holes, 1″ from end and 1″ from side, through each tip of each shelf (Fig. 1).

3. Seal wood with coat of shellac. When dry, paint with coat of enamel. Paint on decorative borders, or use *Decals* (designs which may be transferred to painted surface) from dime store.

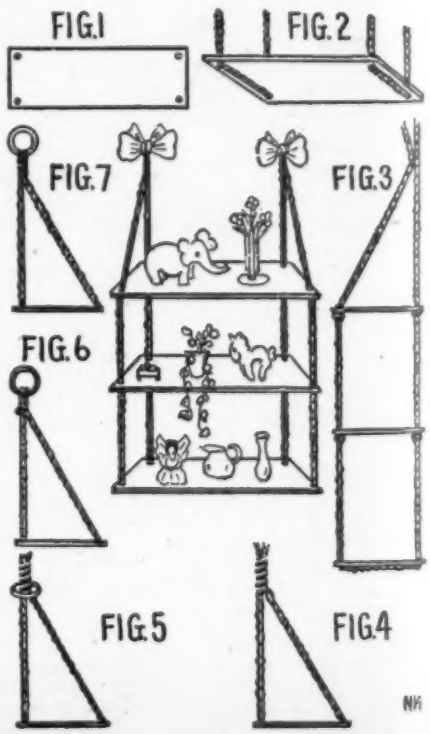
4. Cut 2 pieces of heavy cord 4½ feet long. (Cord used for venetian blinds is excellent. If plain cord is used, it may be left natural or dyed). Slip one cord through holes in left end of shelf, other cord through holes in right end of shelf (Fig. 2). Ends of front ropes should be 3″ longer than ends of back ropes. Drive carpet tacks through ropes across bottom of shelf to prevent ropes from slipping.

5. Tie knots in all four lengths of rope, 6″ above bottom shelf. Knots will support middle shelf. Slip ropes through holes in middle shelf and push shelf down until it rests on knots. Next, tie four knots in ropes 6″ above middle shelf, and slip on top shelf.

6. To hang shelves (Fig. 3), pull front ropes back at an angle to meet back ropes. When shelves are level, bind 2 sets of ropes together with string (Fig. 4). Loop loose ends of ropes through metal ring (Fig. 5). Then bind the ends which have been drawn through the ring to ropes leading to shelf (Fig. 6).

Use string for this first binding, and be sure it is secure. Bind a second time *over* string, with narrow strips of adhesive tape (Fig. 7). Adhesive tape will keep rope from slipping, and can be painted to match shelf or cord.

– MARY COOPER



SPORTS

Paramount

Bing Crosby (left) and Bob Hope.

Star Gazing

DO YOU know that many of our famous movie stars are good athletes? That, in addition to crooning and smiling prettily, they can swim, box, and play baseball – but good?

Johnny Weissmuller, the me-Tarzan you-Jane kid, is still considered the greatest swimmer of all time. In the 1924 and '28 Olympics, Johnny splashed off with three world titles.

Johnny Mack Brown, the cowboy superman, was an all-America halfback at the University of Alabama.

Katharine Hepburn once won the amateur women's golf championship of Connecticut.

Joe E. Brown would rather play baseball than act. Before the movies got a load of his big mouth, he was a better-than-fair minor league player.

Errol Flynn, the one-man blitz, is really a fine athlete. He is an excellent boxer and a great tennis player.

Esther Williams was a national swim champ before Hollywood got a look at her form.

Keenan Wynn, our favorite funny man, was a daredevil automobile driver until he cracked up.

John Wayne was a fine fullback at the University of Southern California.

Bing Crosby and **Bob Hope** are great golfers. Der Bingle also plays a good game of baseball.

Jinx Falkenburg is a fine swimmer and tennis player. She once competed in the national tennis championships.

– HERMAN L. M... *Sports Editor*

Heads – You Win!

A YOUNG Army officer paid us a visit the other day. He had gone into service straight from high school. Now, after a year overseas, he was on his way home. We asked him what he'd learned from his experience.

"Plenty," he said. "But the most important thing is this: I've learned that, no matter what you do, you have to use your head as well as your hands and feet. I wish I'd figured that one out when I was in junior high. I wish my teachers had *made* me study!"

Up to this we'd been "all ears." Then we had to speak up. No one can *make* you study. Your teachers can hand out assignments. Your parents can pester you to do your homework. But only *you* can make *you* study.

Few people – young or old – really like to study. Most people would rather play games, go to the movies, or listen to the radio. But, sooner or later, most people wake up to what our Army friend said: "No matter what you do, you have to use your head."

You can save yourself years of wasted time and bungled efforts if you learn to use your head *now*.

The Editors

How're you doing?

You're watching a school game from the sidelines, drinking a bottle of soda pop. Someone jostles you and some of the pop is spilled on the boy next to you. Should you:

A. Walk away quickly?

B. Apologize and help repair the damage?

C. Empty the rest of the bottle on him?

B is correct.

Junior Scholastic

YOUR WORLD-VIEW MAGAZINE FOR SCHOOL AND HOME

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SOME FUN!

Capital Stuff

Tommy was finishing his prayers. "God bless my mother, and my father, and make Montreal the capital of Canada."

"Why, Tommy!" exclaimed his mother. "Why did you say that?"

"Because," explained Tommy, "I wrote that on my exam."

Laura Hochman, P. S. 175, Brooklyn, N. Y.

Perfect G.I.

A new recruit was brought into battalion headquarters by the sergeant.

"Here's a new man, sir," said the sergeant.

"Fine," said the CO. "What can he do?"

"Nothing," replied the sergeant.

"Good. Then we won't have to break him in."

David Grundy, Berkeley School, Bloomfield, N. J.

Fly Along, Little Dogey

A man who was walking his dog met a four-year-old who paused to pat the pup.

"I have a dog, too," said the little boy proudly.

"That's fine," said the man, "What kind of a dog is it?"

"It's a bird dog," said the boy, "but its wings aren't out yet."

Gloria Hamke, Washington School, Vincennes, Ind.

Demonstration, Please

Garage Manager: "This place needs a good cleaning again."

Helper: "O.K. I'll get the vacuum cleaner people to give us another demonstration."

Kenneth Li, Iowa School, Selma, Calif.

Science Marches On

A soldier-patient came to a field hospital with the complaint that he could not sleep at night.

The doctor advised him to eat something before going to bed.

"But," protested the soldier, "two months ago you told me never to eat anything before going to bed."

The doctor blinked, but replied quickly, "My boy, that was two months ago. Science has made enormous strides since then."

John Bobrowicz, Benscreek School, Portage, Pa.

Rich Prize

A wealthy man lived in an exclusive hotel. Every day, his favorite waiter, Oscar, brought his meals up to his room. And every day, the rich guest gave the waiter a generous tip.

One day, a new waiter came to serve him.

The rich guest was puzzled and asked what had happened to Oscar.

"Oh, don't worry about Oscar, sir," replied the new waiter. "I won you in a raffle last night."

Walter E. Bucko, Henry Lord Jr. H. S. Fall River, Mass.

Joke of the Week

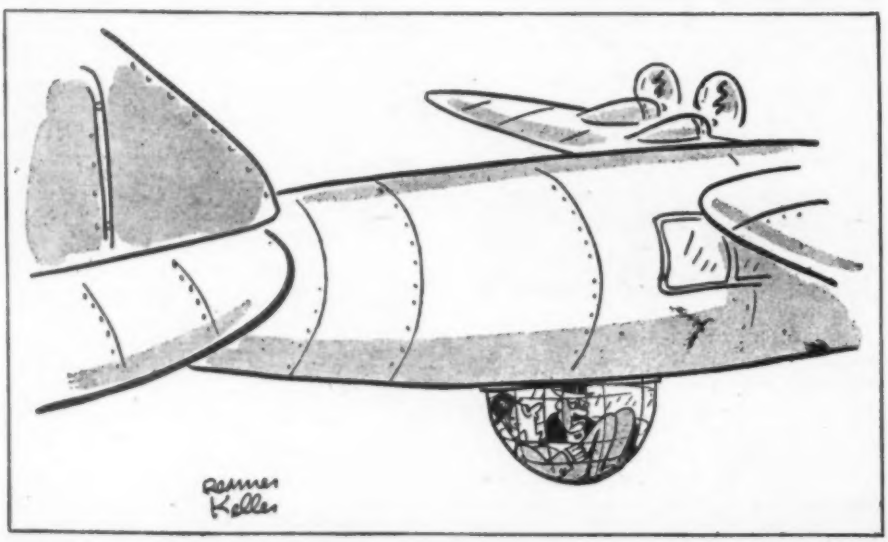
Top humor honors and the Gold Star JSA button for this week go to Betty Ann Carey, Pittsville H. S., Willards, Md.

Johnny never would have thought of volunteering when the teacher asked for someone to spell the word "weather."

But since the teacher was looking directly at him, he felt he had no choice.

"W-e-t-h-i-r," Johnny spelled painfully.

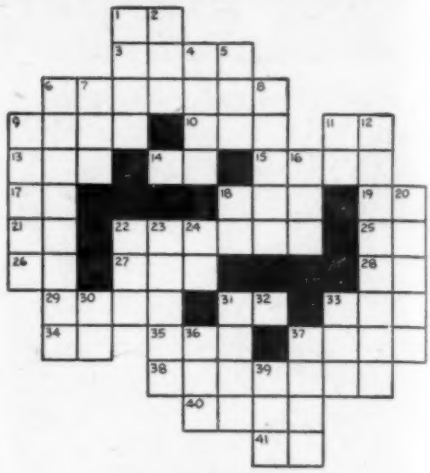
"That," said the teacher wryly, "is about the worst spell of weather we've had around here for years."



Collier's

"I can't say I'm happy about the way they've converted these B-29s to passenger planes!"

news X word



ACROSS

1. Hush! 3. Solemn promise.
6. Country in western Europe.
9. Small, thin nail. 10. Meadow.
11. Preposition showing possession.
13. Groove.
14. Objective case of *I*.
15. Starchy root grown in Pacific isles.
17. Third person singular, present indicative of *be*.
18. Become firm.
19. Expression of surprise.
21. To such an extent.
22. To pass away
25. Abbrev. for *Louisiana*.
26. Second musical tone.
27. Past tense of *light*.
28. Abbrev. for *street*.
29. Large branch. 31. I would.
33. Playing card with one spot.
34. Abbrev. for *saint*.
35. Past tense of *run*. 37. Prejudice.
38. Seaport in Belgium.
40. Weak-minded person.
41. Conjunction.

DOWN

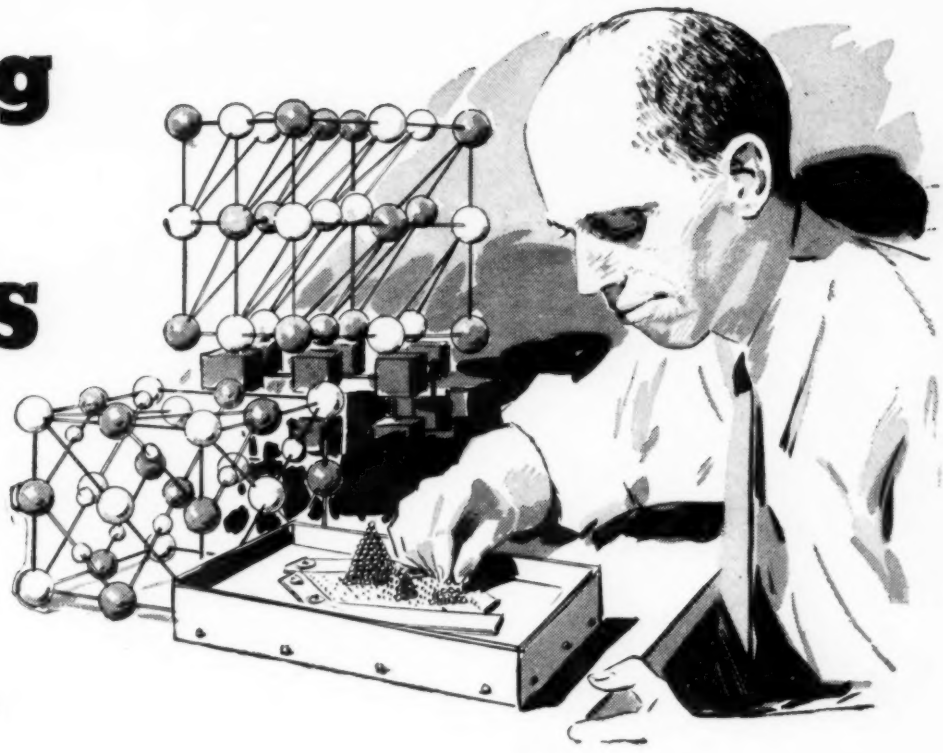
1. Past tense of *sell*.
2. Ugly old woman.
4. Thin piece of clay used for floors.
5. Color or tint.
6. Capital of Belgium.
7. Consume.
8. Husband and wife.
9. Prickly bush.
11. Conjunction.
12. Cap or hood worn by jesters.
16. Past tense of *eat*.
18. Abbrev. for *spelling*.
20. Dislikes.
22. Kind of tree.
23. Seventh sign of Zodiac.
24. Preposition showing place occupied.
30. Neuter gender pronoun.
31. In.
33. What we breathe.
36. Connecting conjunction.
37. Wagers.
39. Women's Land Army (abbrev.).

Solution in Teachers Edition this issue; in Pupils Edition next issue.

Working with Atoms

The Story of

Dr. Ralph Johnson

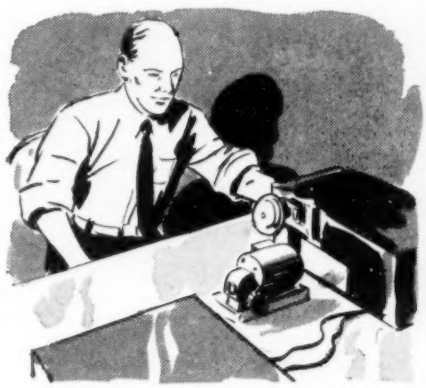


●Ralph Johnson is one of the many General Electric research scientists who have returned to peacetime work after doing a wartime job. Before the war Ralph worked on cathode ray tubes, developing them for improved television. He also developed a method for finding out the "life history" of metals. For example, by a special technique he is able to examine a burnt-out light filament and determine whether that filament carried a-c or d-c current, if d-c current what direction the current flowed in, whether or not the filament was surrounded by gas or housed in a vacuum. At present, Ralph is working in nuclear physics, making atoms "tell their secrets." *General Electric Company, Schenectady, N. Y.*

Ralph spent his childhood In North Carolina. In 1925 he and his family moved to Richmond, Va. Soon after he entered the University of Richmond where he majored in physics, worked as editor on the college paper.

Earning a scholarship to the U. of Virginia, he received his M.A. Shortly after, he returned to the U. of Richmond to teach mathematics and then to M.I.T. where after three years he was awarded his Ph. D.

After working for seven years at G.E., he was granted a leave of absence and in 1943 was sent to England by the government as a special consultant for the A.A.F.



Returning to the U.S. he worked on the "Manhattan Project." Now he is continuing atomic research at G.E. by helping to analyze results from the 100,000,000-volt betatron.

GENERAL ELECTRIC

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Creative Relationships In the Classroom

4. A CLINIC IN CRITICISM

GOOD showmanship is not confined to the entertainment world, nor does its worth end there. When orienting students with life, teachers display endless variety in setting the stage for new surges of creative effort.

An Eighth Grade *clinic in criticism* was opened by the teacher with this question:

"Does anyone wish to put his *personal progress* notes on the blackboard where we can give him some helpful reactions, should we have any?"

Three pupils wrote their notes on the blackboard. The rest of the class watched, reserving judgment.

First Pupil

WEEK OF JANUARY 14TH

Personal Estimate of Progress. *Could be better.*

Regular Lesson Assignments. *All completed; three poor. Had to do them over.*

Gathering Material for Special Interests. *Went through all back numbers of* Junior Scholastic *to see if I had missed anything new in Science and Invention. Had not.*

Exploring for New Interests. *No time. Didn't see anything interesting either.*

Second Pupil

WEEK OF JANUARY 14TH

Personal Estimate of Progress. *Good week.*

Regular Lesson Assignments. *All completed on time; satisfactory.*

Gathering Material for Special Interests. *Read a couple of hours in television. Picked up some good stuff. Need more articles.*

Exploring for New Interests. *Read off and on through the week in some magazines around the house. Found nothing of much interest.*

Third Pupil

WEEK OF JANUARY 14TH

Personal Estimate of Progress. *Fifty-fifty.*

Regular Lesson Assignments. *All completed on time; – satisfactory.*

Gathering Material for Special Interests. *Still not discovered. May never have one.*

Exploring for New Interests. *Read a lot of stuff. Get the biggest kick out of "Builders of America." Wish I could draw.*

THE pupils whose personal progress notes had been exhibited were given the opportunity to comment, before the other pupils spoke.

FIRST PUPIL: "I see what my trouble is, but I can't seem to correct it. I've been weeks in this rut."

SECOND PUPIL: "I want to read more about television but after I've done my regular work and do what I've got to do around the house there's no time left."

THIRD PUPIL: "My mother says I read too many comics and listen to the radio too much, but that's what I like to do best when I'm home."

Others in the class offered comment, which was accepted in good spirit.

"Some kids read the same comics over and over again. That's crazy."

"Comics don't teach you much but they hold your interest. My parents won't let me read comics until all other work is done."

"We have a rule in our house that my brother and I can listen to just two radio programs a day. We have our choice."

"I thought I would never find anything for special interest until my uncle gave me a printing press he had when he was young. Now I print a paper every week. I used to hate to look up spellings in the dictionary. Now I like it."

"The way to find what you can do best is to try a lot of things. If you don't try you might never be good at anything."

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